TREND STUDY 2023

Digital Transformation in Times of Upheaval

Joachim Hackmann, PAC

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On behalf of swisscom

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PREFACE

Urs Lehner
Head of Swisscom Business Customers

For many years now, the topic of digital transformation – that is, the data-based changing of business organizations and processes – has been with us in the professional environment. Swisscom was and continues to be at the center of this movement. After all, we provide services that are critical to success in this area, whether it be connectivity, IT security, or our consulting expertise. A large number of customer case studies – some of which you can find in this trend paper – testify to the successes achieved and progress made.

In the past year, digital transformation has gained a special significance as geopolitical upheavals have severely tested established and proven procedures, in both global supply chains and internal business processes. The rising energy prices and tightening regulatory requirements are forcing companies to intensify and record their efforts regarding sustainable business.

Data and digitalization are crucial key elements in order to be able to deal with the associated challenges. It is rarely possible to create carbon balance sheets without the use of IT and data. The same is true when it comes to achieving net-zero emissions, which every company should strive for in the long run. Smart technologies, high-performance communication, and secure IT architectures can make buildings, production processes, and transport routes more energy efficient – if the required information is available and of a good quality.

Data from sources such as sensors provides insight into the state of the real world. This data can be used to perform analyses, modernize and automate processes, or even create virtual worlds in order to break new ground in marketing and customer service, for example. For instance, virtual training sessions on the digital twin of a machine can reduce business trips and even innovate customer service at the same time.

Working with our customers, we have already made many of the innovations mentioned in this trend paper a reality, always under the guiding principle of Data Driven Business, which combines innovation and security. It seems that other developments, such as the metaverse and hyperautomation, will not become truly valuable until further in the future. Nevertheless, it is important to keep a close eye on these developments and accurately evaluate them as the foundations for future innovations are being laid today.

MANAGEMENT SUMMARY

Joachim Hackmann
Practice Lead BAS, PAC

This year's trend paper provides insights into what is possible as well as some visionary ideas. Here at the market research and analyst firm PAC, we selected the topics together with Swisscom, always being guided by what is relevant for the business models of companies or could soon become so. Of course, these do not cover everything. Rather, it is an incisive and subjective selection. Each subject is presented by PAC and commented on by experts at Swisscom. Differing opinions are quite intentional.

Sustainability has become one of the core topics of enterprise IT. Not only are legislators pushing for greater sustainability, employees are also demanding more efforts from their employers when it comes to climate protection. "Carbon accounting should be an integral part of corporate management and controlling," recommends Res Witschi from Swisscom.

Although **data management** is not a new task for enterprise IT, it is an increasingly topical one. After all, having data is easy, but this does little by itself. What is needed is good data. "Artificial intelligence and machine learning can only be effective if all relevant and available data is of a high quality and brought together," emphasizes Matthias Mohler from Swisscom.

IT security needs to change because both the threat scenarios and the infrastructures to be protected are changing. SASE takes account of this as it addresses weaknesses in conventional, perimeter-centric protection. "It is also a future-proof investment that offers greater security for less money and protects all types of workloads," says Egon Steinkasserer from Swisscom.

Hyperautomation – that is, the complete automation of business processes – is complex and still utopian. "However, through process optimization and the right choice of platform, it is already possible to create important foundations today," says Sarah Levy from Swisscom. The first examples of successful process automation are pointing the way.

The **metaverse**: a topic for business customers? "For the time being, it is only relevant for a small number of customers," thinks Patrick Minder from Swisscom. This could change, and so it is important to at least stay informed and be prepared. In addition, virtual reality – almost a precursor to the metaverse – already offers interesting and feasible possibilities in the area of customer service today.

SUSTAINABILITY

Sustainability has established itself as a core issue among the general public, in politics, and at companies. There are various reasons why topics such as climate protection, decarbonization and, by extension, ESG (environmental, social, governance) are on the agenda of top management:

Business aspects: Due to the sharp rise in energy prices, and in the face of a possible energy shortage, decarbonization has gained greater economic significance than in the past. Saving energy pays off and ensures the competitiveness of companies in energy-intensive industries. In addition, the Supply Chain Act (Lieferkettensorgfaltspflichtengesetz), which has been in force in Germany since January 2023 and is to be applied across the EU in a more stringent form in the coming years, obliges companies along the entire supply chain to carefully manage any social and environmental impacts – therefore, also including suppliers from Switzerland.

Legal aspects: In 2024, the Ordinance on Climate Disclosures comes into force in Switzerland, obliging organizations above a certain size to provide transparent reporting on climate-relevant activities as well as reduction targets for the emission of greenhouse gases. In addition, the EU's Green Deal is also relevant for Swiss companies. It consists of countless investment, legislative, and strategy packages. These include, for example, the Corporate Sustainability Reporting Directive (CSRD), which came into effect at the start of the year and is fundamentally changing sustainability reporting. Swiss companies that have major economic ties with the EU are affected.

Demographic aspects: Climate change has reached a level where the consequences are visible (melting glaciers, snowless winters, extreme weather, etc.). Especially young employees who are gradually pushing their way into working life are demanding that their companies switch to sustainable business practices. More and more junior managers are moving into key leadership positions where they influence a corporate strategy that takes climate protection into account. Sustainability is becoming a criterion for the attractiveness of an employer.

The use of IT and digital technologies is absolutely crucial when it comes to implementing climate protection goals. For instance, location-independent working has reduced commuter traffic, energy suppliers can increasingly feed in renewable, decentralized energy sources with the help of intelligent distribution networks, buildings and offices can be operated with greater energy efficiency, and the transportation of goods can be optimized using IoT (the Internet of Things) and analytics, to name just a few examples. Of course, it is important not to lose sight of the fact that IT operations are also a cause of greenhouse gases and must therefore be the subject of IT-supported optimization.

According to PAC's observations, the topic of sustainability is still in its infancy in most companies. In many places, the dilemma is that, in view of the diverse data sources and possible levers along the value chain, the task of the fundamental transformation becomes enormously complex. This situation results in a large demand for support solutions from experienced IT services providers. However, the portfolio of products and services offered by most IT providers is currently characterized by tactical services. That is, the support services are provided as required and according to the customer project. More mature markets are characterized by preconfigured service catalogs. The bottom line is the realization that there is still significant potential for development, on both the supply and demand side.

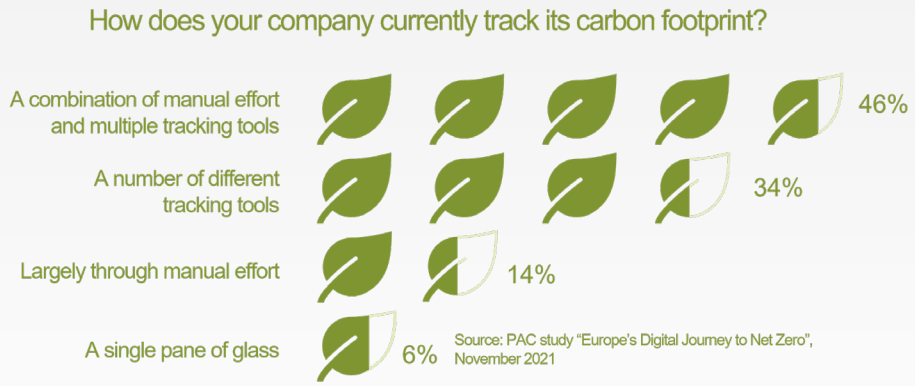

Fig. 1: Status quo of CO_2 tracking in European organizations

“Carbon accounting should be an integral part of corporate management and controlling. This requires professionalization and better IT equipment in many companies.”

Res Witschi
Delegate for Sustainable Digitalization at Swisscom

Res Witschi, Swisscom: Climate protection and sustainability are issues that have been with Swisscom for a long time and for which we have had solutions in our portfolio for many years. Demand has been increasing recently. We are holding numerous discussions with a large number of interested companies and are already involved in some customer projects. More and more companies are busy dealing with the challenge of digitally mapping and tracking the path to net zero.

A lot has happened on the technical side compared to previous years. Around ten years ago, solutions such as cloud computing, networking, smart working, videoconferencing, and green IT shaped sustainability projects. Today, there is also intelligent software, data analytics, artificial intelligence (AI), and machine learning. In addition, the number and form of data sources has multiplied due to the use of sensors, meaning that buildings, vehicles, and machines can be networked and optimized.

The fact that demand is increasing is of course largely due to legal requirements, among other things. Carbon accounting is not possible without the use of networking and IT as it only works with the help of intelligent data collection, processing, and analysis. And this is complex because calculating the environmental footprint depends on a large number of factors that are not always clearly identifiable. In any case, the goal has to be to achieve and record a net-zero balance sheet. Carbon balance sheets are still often created using Excel. This does not do justice to the complexity and importance of the subject.

In general, carbon balance sheets need to be given greater significance in companies. They should achieve a quality standard on a level that we are already familiar with from controlling and the financial system, so that, as a result, a similarly high level of trust is established in carbon accounting. This requires appropriate tools and professionalization. I believe that this should be an important goal for many companies in the years to come.

DATA MANAGEMENT

It has already been a few years since the first wave of implementations of big data solutions hit the IT market. This was accompanied by the responsible top managers talking for the first time about adapting their corporate strategy and developing their company into a "data-driven organization". The idea is that data could create transparency, more specifically along the entire value chain, i.e. in internal processes and production, customer and supplier relationships, as well as corporate management and planning.

As a result, many organizations in the private and public sectors have invested billions of dollars, euros, and francs in building their technical structures and foundations in order to be able to collect, analyze, and process data. Due to this development, important regulatory frameworks have emerged. These do not stop companies' passion for collecting, but should give them guidance. For example, a milestone was reached in 2016 when the EU passed the now globally recognized General Data Protection Regulation, which governs the handling of personal (customer) data.

Many of the original goals have already been achieved. There are numerous examples of companies launching new, data-based services, internal processes being optimized with the help of data analysis, and completely new, data-based business models being created. New technical possibilities were absolutely crucial for this, especially cloud computing, which ensures scalability when it comes to storing and processing data and therefore also offers easy access to innovations in areas such as artificial intelligence and machine learning.

However, there is still a long way to go. The amount of data is growing exponentially. The number and variety of technology solutions for data processing and analysis available on the market is increasing too, however, this has in no way provided relief. Rather, it has had the opposite effect. According to PAC's recent global CxO Survey of more than 1,000 executives from business and IT, 41 percent of the respondents consider the integration of multiple distributed data sources and the selection of the right technology to be the biggest challenges when it comes to data analytics projects.

It is also evident, for example, that companies with long-standing successful business models usually have greater difficulties completing the digital transformation towards a data-based organization than small companies and start-ups, who have little or no need to take investment protection and existing business into account. Large organizations often suffer from heterogeneous data silos, which have arisen, for example, through company acquisitions or through uncoordinated initiatives in business or country units. In addition, the wishes and goals of business departments are inconsistent with the requirements for data protection and security or the IT strategy in general, meaning that projects have to be intensively negotiated internally, which makes progress difficult.

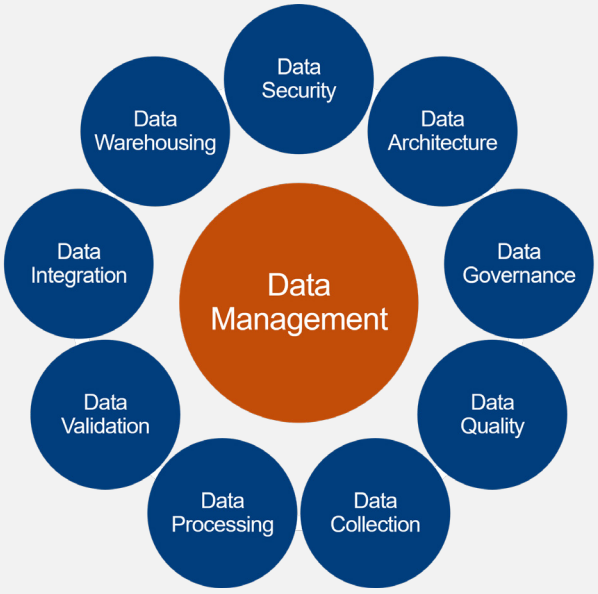

Fig. 2: The dimensions of data management

Overall, however, there are already solid foundations in place for the transition to a data-based business model: the necessary technologies are mature and developing quickly. Data volumes are growing, and there are ways of processing them qualitatively. Last but not least, there is a lot of experience, both on the part of user companies and among services providers, to enable the successful implementation of projects and long-term strategies in the area of data management.

Matthias Mohler, Swissscom: There are lots of discussions around artificial intelligence and machine learning at the moment. The hype fuels high expectations regarding what will be possible in the future, in relation to process optimization, decision-making, or new business models, for instance.

A central component is cloud computing because it saves costs, is scalable, and enables access to innovations such as artificial intelligence and machine learning. In practice, however, it is by no means about abandoning anything that is traditional. Rather, it is about interlinking the old and new world in an intelligent manner.

An example of how the legacy world can be connected to the public cloud is a Swisscom project with the insurance company Helvetia, which, in a highly regulated market, has integrated its old, heterogeneous data warehouse systems with public cloud capacities to form a hybrid data pool. In doing so, we have bridged the gap between investment protection and innovation capability for Helvetia.

Central to such projects is data management, which is not really a new topic. A lot of the data within companies resides in transactional systems such as ERP or CRM platforms, as well as in self-developed applications. Digitalization is creating more variety because data from social media platforms, sensors, and IoT platforms is added. Another rich data source of the future is the information disclosed between organizations as part of open data initiatives. This could be anonymized health data for research or accident data from public registers for determining sources of danger, for example. Technical solutions to handle access rights in accordance with the law, for example, are still missing in some areas. Open data is still in its infancy, but it has huge potential.

Artificial intelligence and machine learning can only be fully effective if it is possible to bring all this data together. However, this also requires a consensus about the value of data and about data quality. For example, the latter means cleansing, inventorying, and cataloging data, as well as establishing a company-wide data and application architecture.

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Matthias Mohler
Head of Data & Analytics at Swisscom

“Artificial intelligence and machine learning can only be effective if all relevant and available data is of a high quality and brought together.”

SECURITY

Over the past decade, a healthy balance of “give and take” has been struck between consumers, customers, and citizens on the one hand, and providers of digital services on the other. Consumers, customers, and citizens willingly disclose personal information. In return, organizations grant them access to public or private, free or paid services. The offer of digital services is forever expanding through a constantly growing number of interaction points. Alongside digital communication channels such as websites, mobile apps, e mail, messenger services, and chat channels, analog interaction channels are also increasingly being mapped digitally. And increasingly sophisticated, data-driven AI and automation solutions are being deployed.

Until now, most companies have continued to treat each type of interaction as a separate channel for the customer experience (CX). That is, the data is not integrated with that from other channels. However, efforts towards “identity stitching”, i.e., the consolidation of matching identification data (e.g. via device IDs, e mail addresses, account authentication), have already been initiated in many places. Naturally, the goal here is to have a comprehensive and uniform view of a person across all contact channels.

To the same extent that companies are trying to obtain more information about customers, the appetite of hackers and other malicious players to gain access to customer-related data is growing. This has led to an IT security arms race. Professional IT users and operators have recognized the need to find alternative ways of identifying a person and interconnecting their digital interactions. PAC expects increased commitment to securing all elements of identity stitching in the coming years.

Essential for this will be CIAM (customer identity and access management) tools, for example, which, in conjunction with existing data protection technologies and new security approaches such as SASE, will protect both personal customer data and business data within companies. This will enable companies to maintain an appropriate level of insight into personal information and, at the same time, protect the identities of individuals from unauthorized access. Last but not least, new and better solutions will arise that enable each individual to regain more control over their own digital identity.

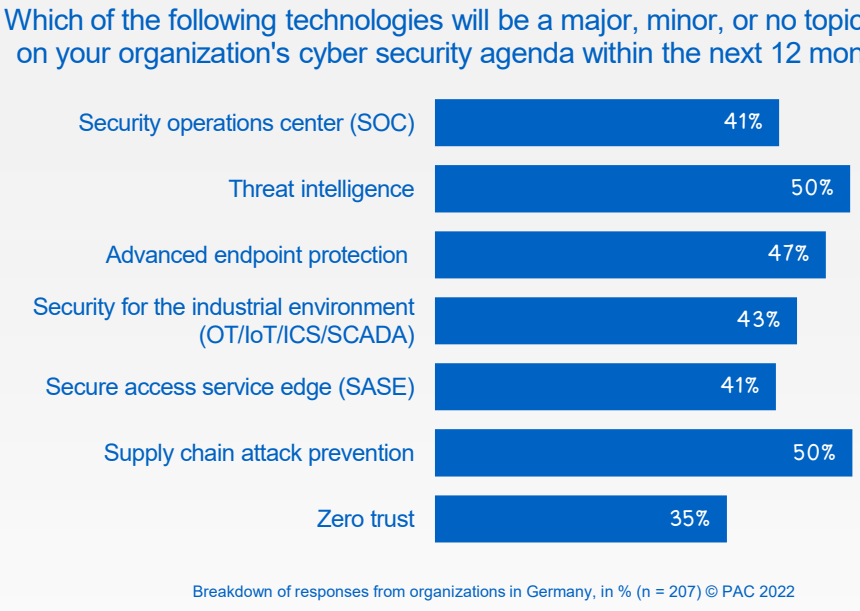


Fig. 3: Key items on the cyber security agenda of organizations

“SASE is also a future-proof investment that offers greater security for less money and protects all types of workloads.”

Egon Steinkasserer
Chief Technology Officer
B2B at Swisscom

Egon Steinkasserer, Swisscom: Networking and security are actually diametrically opposed: networks provide connectivity and thus communication, while security seeks to control connectivity and thereby limit communication. Linking the two together using cloud technology – that is the very essence of SASE (secure access service edge). SASE is therefore also a response to fundamental changes in the security architecture of companies: previously, they invested a lot in security at specific, physical locations (perimeter security). However, in the post-Covid era and the age of cloud computing, business applications and workspaces are less and less tied to company locations.

The core element of SASE is a zero-trust architecture which fundamentally distrusts all users, computers, and applications, and therefore constantly scrutinizes identities etc. (zero trust network access – ZTNA). SASE integrates a host of function blocks – and that can well be 70 or 80 – with a uniform set of policies which are ideally enforced in every node of a network. Therefore, unlike in previous security architectures, there is a common understanding about who can do what in the network and to which data and applications access is granted. True SASE solutions should also be provided using the SaaS model so that the service is always up to date. In my opinion, single-pass processing is also part of genuine SASE. This means that the packet processing takes place across all function blocks in the same process.

The implementation of SASE comes with many benefits and a number of challenges, especially in relation to onboarding. So that ZTNA can truly work, each user, device, and application need to be disclosed. This can be difficult in large organizations because there are often many unknown applications. The effort is worth it, however, as SASE promises greater security for less money, less complexity, and consistent, comprehensive protection with the help of zero trust. Therefore, SASE is also a future-proof investment in security because it protects all types of workloads (SaaS, on-premises, hybrid, etc.).

HYPERAUTOMATION

Companies and organizations are automating on a broader front – including an increasing number of critical elements in their operations. Many are reaching their limits here as they lack the basic building blocks to implement this effectively and efficiently. For many, the ultimate goal is to automate end-to-end processes, tailored to the needs of end customers or end users. The aim is to free overburdened employees from monotonous manual tasks. According to PAC's definition, this is what "hyperautomation" is all about.

However, so far, most automation projects have focused on the digitalization of individual processes or sub-processes, and, owing to a lack of governance, automation solutions have been used mostly tactically rather than strategically to date. Quick successes in individual departments or silos fizzle out, without contributing to improvements on a broader scale.

It is clear that business leaders are currently rethinking and refining their approach to automation, and, against this background, process orchestration is increasingly becoming a hot topic. While most automation solutions cover individual tasks (i.e. they enable the completion of individual activities such as scanning documents or order releases without manual intervention), the focus of orchestration is on the automation of multiple tasks to cover complete processes.

The primary purpose of orchestration is to break the vicious circle in which many automation strategies are stuck: they simply use a bot for manual tasks that were previously done by employees. Although this achieves certain short-term cost savings, the automation only relates to isolated tasks, without any coordination with other sub-processes. This only offers limited benefits. The focus on individual tasks often leads to companies and organizations automating multiple tasks of a particular process in different ways, tailored to the requirements of individual employees. Orchestration provides a wraparound layer here which creates a standard workflow for various tasks in parallel with the bots.

By engaging with process orchestration, companies and organizations can also determine whether their business processes are state of the art or, true to the motto "that's how we've always done it", are being hindered by outdated procedures. If this behavior is challenged through orchestration, even more efficiency gains can be achieved.

Through process orchestration, companies can overcome the silos or departmental boundaries that many automation initiatives struggle with. When corporate strategists use process mining, they quickly realize that many different moving elements of the organization are affected and that it is not possible to solve this issue comprehensively using a database, an application, and a bot. Orchestration ensures that these various underlying technologies work together in harmony so that activities that affect multiple areas of the company can be automated.

Process automation will give many companies the operational efficiency and resilience they need given the increasingly unpredictable economic environment. In 2023, process orchestration will develop into an important building block for future success.

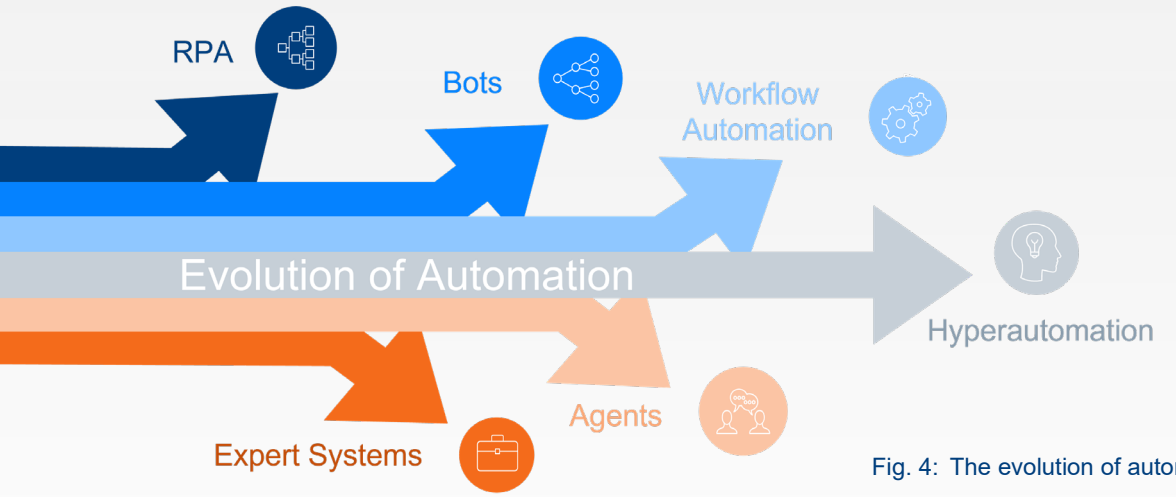
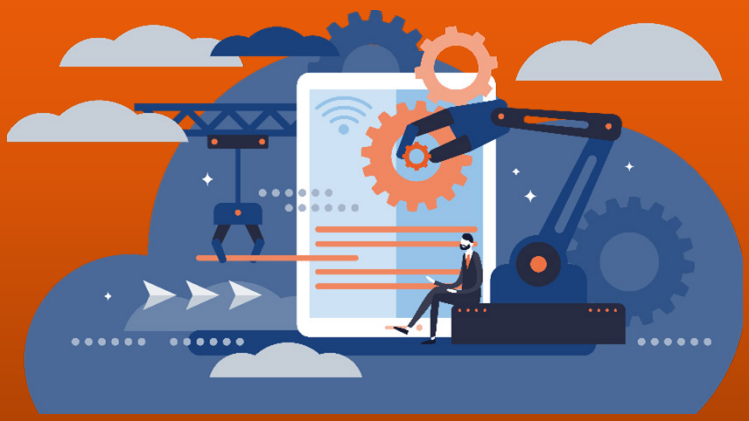


Fig. 4: The evolution of automation



"The path to hyperautomation is long and complex. However, through process optimization and the right choice of platform, it is already possible to create the foundations today."

Sarah Levy
Head of ServiceNow at Swisscom

Sarah Levy, Swisscom: In our discussions with customers, we see a great need for business process transformation and process automation, driven by four core requirements. The first is a need for speed and agility. The world is becoming more complex and faster. Business processes also need to adapt accordingly. Secondly, processes need to be digitalized. The application landscape is highly fragmented today. Therefore, there is a lack of integration, including at the process level, which leads to inefficiency – recognizable, for example, in a fragmented customer journey. Thirdly, the potential of employees could be better exploited through process improvements. Day-to-day work is often characterized by lots of tasks and little content. Repetitive workflows should be automated where possible so that employees can focus on tasks which create added value – which also results in more job satisfaction and less turnover of staff. Last but not least, it is about making processes more efficient. The impacts of the rising costs of labor and inflation can be limited through process automation.

We are not talking about hyperautomation yet as the path to continuous process optimization is complex. However, in the projects that we are currently running for customers, the foundations are being laid through us resolving strategic issues, analyzing and simplifying initial processes, and providing support for selecting the right tools (for example, when it comes to choosing a low-code/no-code platform or an integration platform). For instance, in this way, it was possible to automate the daily receipt and processing of around 100,000 statements of benefits at a health insurance company.

Processes should be optimized where possible in order to pave the way for hyperautomation. It is important to start soon and opt for future-proof solutions.

THE METAVERSE

Today, the term “metaverse” stands for the vision of a digital universe with many different virtual worlds in which you can completely immerse yourself in true-to-life experiences in real time. In order to anchor this visionary topic in a somewhat more practical reality, PAC has opted for a more succinct definition: in our analyses, we regard the metaverse as a holistic virtual environment in which people can interact in real time with simulated things, people, and processes.

Metaverse-related use cases in the commercial sector typically revolve around three topics: office productivity (collaboration), sales & marketing (virtual shopping malls and trade fairs), and human resource management (training sessions which require realistic environments or engaging, fun elements).

In the industrial metaverse, it is about interactions between people and digital models of complex industrial operations. It includes the holistic simulation of physical things such as large production lines and entire factories, but also processes such as supply chains. Although this requires a whole range of different technologies, the centerpiece of the industrial metaverse is digital twins (virtual representation of physical things, places, and processes). AI-based simulations enable real-time experiences and interactions with industrial operations. Graph databases help when it comes to storing the relationships between different digital twins. IoT provides support for the synchronization of the physical and digital world.

In this way, it is possible to monitor and analyze the current situation, retrace the past, and predict the future. Finally, it is possible to build autonomous systems. Using AR/VR technology, people are able to interact with the industrial metaverse in an immersive manner.

PAC observes that companies today are already using elements of digital twins in different areas, and we anticipate more and more integration efforts to create more holistic digital twins of operations – or, in other words, to map the operations of an organization in an industrial metaverse.

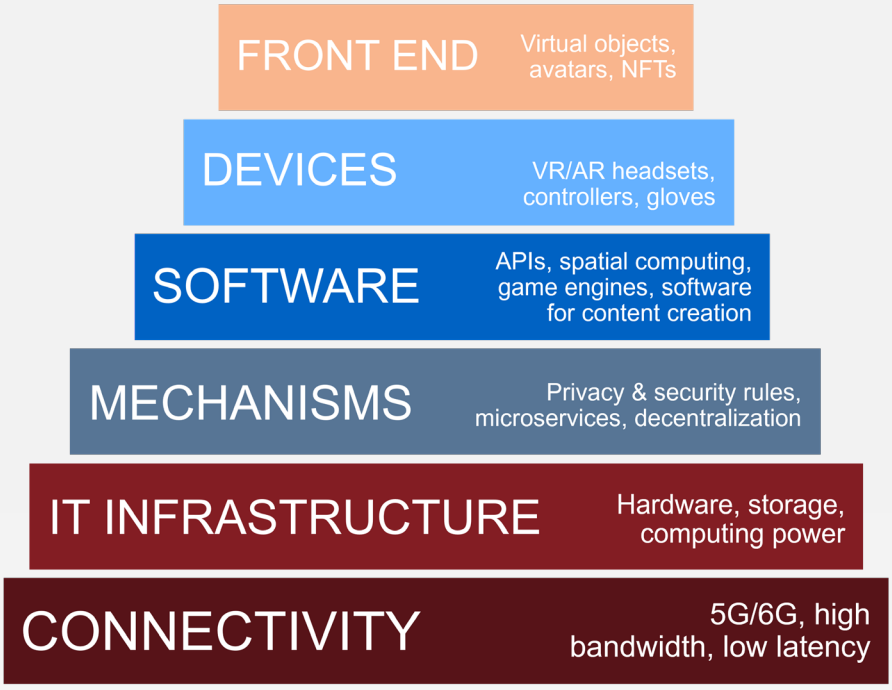


Fig. 5: The six technical layers of the Metaverse

Patrick Minder, Swisscom: The development of the metaverse is still at the very beginning. Although the technology is more mature than it was at the time of the initial hype around Second Life and Pokémon Go, for example, there are still many issues to resolve. For instance, what will be the appropriate platform and access device of the future? Meta and Apple, in particular, are currently investing lots of money and development resources to fill the role of gatekeeper. For Swisscom as a network operator, the long-term implications for network utilization are also always important.

Nevertheless, virtual reality can already be used today to produce interesting and innovative solutions. Together with our subsidiary JLS Digital, we have created a virtual tour of a retail customer's new salesrooms in order to plan and visualize the placement of digital advertising installations.

In the B2B environment, the metaverse can be used in various ways, such as for training on a digital twin or maintenance and repair instructions for complex machinery. The metaverse is also interesting as an additional channel for customer marketing. Manufacturers of luxury goods already use the platforms for their brand extension by digitalizing their products and promoting virtual ownership. It is also conceivable to address the gaming scene as this target group is tech-savvy and, contrary to what many people think, no longer consists only of teenagers, but also of working adults.

For most retailers and manufacturers of consumer goods, the metaverse might not be of interest at the moment. However, it can definitely be advisable to explore the potential for customer service and marketing. Also, perhaps it does not need to be metaverse yet: the current possibilities of virtual reality and augmented reality are diverse and can be applied almost immediately.

Patrick Minder
Head of Platforms & Applications at Swisscom

"The metaverse can bring about innovations in customer service and marketing, but it is still in its infancy. The possibilities of virtual reality and augmented reality are similarly diverse and can already be applied today."

APPENDIX

DISCLAIMER, USAGE RIGHTS, INDEPENDENCE AND DATA PROTECTION

This study was commissioned by Swisscom.

For more information, please visit www.pacanalyst.com.

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